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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/773,713	01/31/2001	Hideaki Yoshida	P/3541-11	6998

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EXAMINER	
YE, LIN	

ART UNIT	PAPER NUMBER
2615	3

DATE MAILED: 07/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/773,713	Applicant(s) YOSHIDA, HIDEAKI	
	Examiner Lin Ye	Art Unit 2612	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *31 January 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,7-9 and 14-16* is/are rejected.

7)☒ Claim(s) *3-6 and 10-13* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-2 and 7-9 rejected under 35 U.S.C. 103(a) as being unpatentable over Iizuka U.S. Patent 6,686,960 in view of Applicant's Prior Art and Kelly, 3rd et al. U.S Patent 4,730,213.

Referring to claim 1, the Iizuka reference discloses in Figures 4 and 18-23, an apparatus for taking an image of a subject comprising: mode setting means for setting either of first (Normal Operation) and second (Adding Operation) modes (See Col 18; 1-6); an interline transfer imaging device (image pickup apparatus 1, See Col. 8, lines 39-47) having photosensitive sections (2) each of which is composed of a plurality of pixels arranged in the vertical direction and responsive to incident light for producing charges, vertical transfer paths (4) arranged alternately with the photosensitive sections in the horizontal direction, each of the vertical transfer paths being arranged to vertically transfer signal charges produced from a corresponding one of the photosensitive sections, and a horizontal transfer (7) path for transferring signal charges transferred by the vertical transfer paths to outside of the imaging device; driving means (driving system 23 as shown in Figure 23, see Col. 21, lines 54-55) for

driving the imaging device, which, in the first mode (Normal Operation), produces first vertical drive signals that cause signal charges produced in each of the photosensitive sections to be transferred from a corresponding one of the vertical transfer paths to the horizontal transfer path at a first normal transfer rate (See Col. 18, lines 1-5), in the second mode (Adding Operation), produces second vertical drive signals that cause signal charges produced in each of the photosensitive sections to be transferred from a corresponding one of the vertical transfer paths to the horizontal transfer path at a second transfer rate N times (i.e., if a single sample is derived from mine pixels in the second mode, the frame rate will become N=6 times relative to the first mode, see Col. 20, lines 1-5) the first normal transfer rate so that pixel signals from each of the vertical transfer paths are added together in the horizontal transfer path (See Figure 20A, i.e., G11 and G31 are added together and transfer to the horizontal transfer path 7), and, in each of the first and second modes, produces horizontal transfer signals that cause signal charges in the horizontal transfer path to be transferred to outside of the imaging device as a line of image signal; and processing means (Signal Processing system 24 as shown in Figure 24, see Col. 21, lines 55-58) for processing the image signal read out of the horizontal transfer path, the processing means, in the first mode, performing processing on the image signal output from the horizontal transfer path for conversion into image data. In the second mode, the pixels are arranged in the horizontal direction to addition **inside** of the horizontal transfer path (7) as shown in Figures 20-21 (the first column and third column has **same color** are added together, i.e., (G11+G31) +(G13+G33). See Col.

19, 16-21). However the reference does not explicitly show this addition in the horizontal direction is processed **outside** of horizontal transfer path.

The Applicant's Prior Art discloses in "BACKGROUND OF THE INVENTION" section, page 3, 1-8, shows the internal analog addition requires some modification to be made to the transfer-driving scheme of the imaging device, it is more complicate than added together in outside of digital circuitry. This sets forth the motivation to process the addition operation in the horizontal direction at outside of horizontal transfer path in the digital image processing art. For that reason, it would have been obvious the processing means to subject pixel signals in image signal from the horizontal transfer path which correspond to pixels arrange in the horizontal direction to addition and processing the resulting image signal for conversion into image data in the second mode disclosed by Iizuka.

The both Iizuka reference and Applicant's Prior Art does not explicitly states the processing means for averaging the pixels after the addition in the horizontal direction.

The Kelly reference discloses in Figures 1-2, a method for averaging (adds and averages) pixels that illumines with the same color of light in horizontal direction (each rows). For example, column D2 and D5 emit green light, the pixel in the D2 and D5 averaged in the measuring process (See Col. 8, lines 46-51, Col. 7, lines 1-2 and Col. 6, lines 63-68). The Kelly reference is evidence that one of ordinary skill in the art at the time to see more advantages for the image processor adds the pixels in the horizontal direction and averages it so that the resulting image signal has proper luminance level. For that reason, it would have been obvious to see the processing

means for averaging the pixels after the addition in the horizontal direction disclosed by Iizuka.

Referring to claim 2, the Iizuka reference and Applicant Prior Art disclose all subject matter as discussed in respected claim 1, and the Iizuka and reference discloses wherein the number of pixel signals is added together in the second mode by the drive means (in vertical direction), the same number of pixel signals is added together in the second mode by the processing means (in horizontal direction), and the number is an integer N of not less than two (e.g., the two numbers added in vertical direction, i.e., G11+G31, G13+G33. These two signals transfer to horizontal transfer path and also added together (G11+G31) + (G13+G33). This means the integer N is two).

Referring to claim 7, the Iizuka reference, Applicant Prior Art and Kelly disclose all subject matter as discussed in respected claim 1.

Referring to claim 8, the Iizuka reference, Applicant Prior Art and Kelly disclose all subject matter as discussed in respected claim 7, and wherein in the second mode (addition operation) the processing means (addition in horizontal direction) performs addition on alternate pixel signals in one line of pixel signals.

Referring to claim 9, the Iizuka reference, Applicant Prior Art and Kelly disclose all subject matter as discussed in respected claim 2.

3. Claims 14-16 rejected under 35 U.S.C. 103(a) as being unpatentable over Iizuka U.S. Patent 6,686,960 in view of Applicant's Prior Art, Kelly, 3rd et al. U.S Patent 4,730,213 and Watanabe U.S. Patent 5,420,629.

Referring to claim 14, the Iizuka reference, Applicant Prior Art and Kelly disclose all subject matter as discussed in respected claim 1, also the Iizuka reference discloses a solid state imaging device including matrix array of pixels for generating the pixel signals, which is provided with color filters of the Bayer arrangement as shown in Figures 4 and 18 (See Col. 8, lines 51-56), the pixel signals being selectively output at a normal transfer rate or at N time the normal transfer rate, wherein the N is not smaller than 2 and is integer (N is 6, see Col. 20, lines 1-5). However, the reference does not explicitly show the detail of the image processing circuit (24) including A/D converter.

The Watanabe reference show in Figure 1 and 3, an improved solid-state image-sensing device can increase n times a standard read rate in pixel mixed mode. The sum of addition data is output from A/D covert (3) to the memory for digital image processing (See Col. 3, lines 12-15 and lines 64-68). The Watanbe reference is evidence that one of ordinary skill in the art at the time to see more advantages for the image processor including the A/D convert for converting the analog signal to the digital image data so that next the data can be done any digital processing such as color correction, compressing and storing in the memory etc. For that reason, it would have been obvious to see the image processing circuit (24) including A/D converter disclosed by Iizuka.

Referring to claim 15-16, the Iizuka reference, Applicant Prior Art and Kelly disclose all subject matter as discussed in respected claim 14, and the Iizuka reference discloses the solid sate imaging device is interlace read out (transfer) type CCD (See col. 8, lines 40-48).

Allowable Subject Matter

4. Claims 3-6 and 10-13 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Referring to claims 3-6 and 10-13, the prior art does not teach or fairly suggest an the exposure control means setting the target exposure value in the second mode to 1/N the target value in the first mode.

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Lin Ye** whose telephone number is **(703) 305-3250**. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wendy R Garber can be reached on (703) 305-4929.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, DC. 20231

Or faxed to:

(703) 872-9314

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal drive, Arlington, VA., Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

WENDY R. GARBER
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600

Lin Ye
July 8, 2004